

# MATHEMATICS SCORING RUBRIC: A GUIDE TO SCORING EXTENDED-RESPONSE ITEMS

The following rubric is used for the extended-response items for grade levels 3 through 8.

## MATHEMATICS SCORING RUBRIC

**Score Level**

**4**

- ♦ shows complete understanding of the problem's mathematical concepts and principles
- ♦ uses appropriate mathematical terminology and notations including labeling answer if appropriate
- ♦ executes algorithms and computations completely and correctly

**3**

- ♦ shows nearly complete understanding of the problem's mathematical concepts and principles
- ♦ uses mostly correct mathematical terminology and notations
- ♦ executes algorithms completely; computations are generally correct but may contain minor errors

**2**

- ♦ shows some understanding of the problem's mathematical concepts and principles
- ♦ uses some correct mathematical terminology and notations
- ♦ may contain major algorithmic or computational errors

**1**

- ♦ shows limited to no understanding of the problem's mathematical concepts and principles
- ♦ may misuse or fail to use mathematical terminology and notations
- ♦ attempts an answer

**0**

- ♦ no answer attempted

### STRATEGIC KNOWLEDGE:

Identification and use of important elements of the problem that represent and integrate concepts which yield the solution (e.g., models, diagrams, symbols, algorithms).

- ♦ identifies all important elements of the problem and shows complete understanding of the relationships among elements
- ♦ shows complete evidence of an appropriate strategy that would correctly solve the problem

- ♦ identifies most of the important elements of the problem and shows a general understanding of the relationships among them
- ♦ shows nearly complete evidence of an appropriate strategy for solving the problem

- ♦ identifies some important elements of the problem but shows only limited understanding of the relationships among them
- ♦ shows some evidence of a strategy for solving the problem

- ♦ fails to identify important elements or places too much emphasis on unrelated elements
- ♦ reflects an inappropriate strategy for solving the problem; strategy may be difficult to identify

- ♦ no apparent strategy

### EXPLANATION:

Written explanation of the rationales and steps of the solution process. A justification of each step is provided. Though important, the length of the response, grammar, and syntax are not the critical elements of this dimension.

- ♦ gives a complete written explanation of the solution process; clearly explains what was done and why it was done
- ♦ may include a diagram with a complete explanation of all its elements

- ♦ gives a nearly complete written explanation of the solution process; clearly explains what was done and begins to address why it was done
- ♦ may include a diagram with most of its elements explained

- ♦ gives some written explanation of the solution process; either explains what was done or addresses why it was done
- ♦ explanation is vague, difficult to interpret, or does not completely match the solution process
- ♦ may include a diagram with some of its elements explained

- ♦ gives minimal written explanation of the solution process; may fail to explain what was done and why it was done
- ♦ explanation does not match presented solution process
- ♦ may include minimal discussion of the elements in a diagram; explanation of significant elements is unclear

- ♦ no written explanation of the solution process is provided